NH's Response to AASHTO's SPaT Challenge – a V2i Connectivity Project

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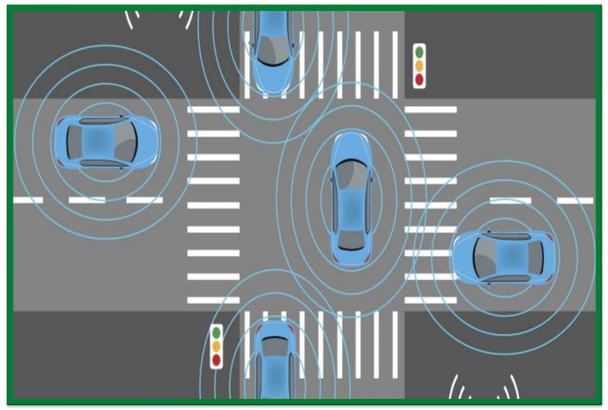
Upgrading Traffic Signals for CV/AV Communications

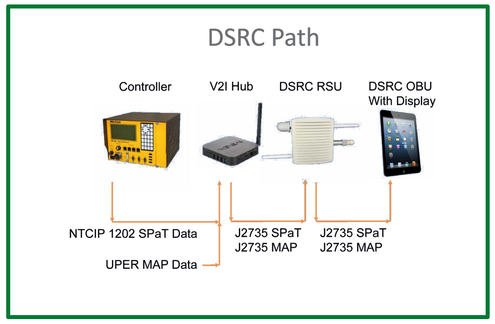
AASHTO has challenged all 50 states to begin implementing V2i capabilities at their signalized intersections. NH is the first state in New England to accept this challenge.

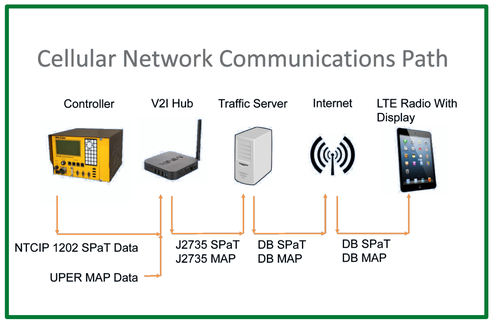


What is V2V and V2i?

DSRC and LTE Modalities Were Compared

Researchers wanted to determine the latency differences among the two most obvious communication methods. DSRC is the high-speed current technology used in most vehicles for broadcasting the basic safety message (a vehicle's speed and direction). 4G LTE is a comparable wireless-based technology that is soon to become 5G. For V2i applications, is one means better than the other?

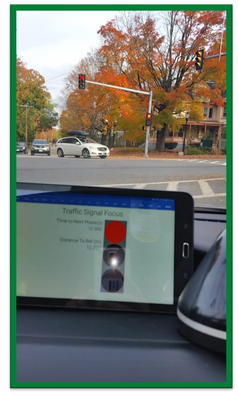




Communication paths compared - DSRC on the left and 4G LTE on the right.

Both Methods Have Their Limitations – The Ultimate Solution May Be a Combination

Both laboratory and field testing were performed for the two communication methods and the results showed that DSRC radios were faster at transmitting the SPaT information, but the bandwidth and range of DSRC is limited. 4G LTE, albeit slower, performed at acceptable speeds for non-safety messaging. The final solution may be to use DSRC at its 0.1 second speed for safety applications and 4G LTE for mobility or non-time sensitive messaging.



The field installation of the RSU's, the RSU, and the OBU.

NH's Deployment in Dover Will Serve as a Test Bed for Further Research

The answers to these and other CV/AV questions are still a work in progress nationally. This project has created a "test bed" from which NHDOT can make more informed decisions in the future when the time comes.

Acknowledgments

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References

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